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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,188	03/11/2004	Taiji Ema	960045E	4959

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EXAMINER

UMEZ ERONINI, LYNETTE T

ART UNIT	PAPER NUMBER
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1765

DATE MAILED: 01/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/797,188

Applicant(s)

EMA ET AL.

Examiner

Lynette T. Umez-Eronini

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 March 1945.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☒ Certified copies of the priority documents have been received in Application No. 08/592,481.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/11/04 & 4/19/05.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The information disclosure statement filed 3/11/2005 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because Japanese documents "AN," "AO," and "AP" were not provided. It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609.05(a).

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 2 and 4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 2, "before the step of forming the first insulation film, the step of forming over the conductor pattern a fourth insulation film . . . the first insulation film is etched with the fourth insulation film as a stopper" is indefinite because it is unclear whether the

claim requires forming the fourth insulation film then forming the first insulation film over the conductor pattern.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-5; 6-8; 9-11; and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tottori et al. (US 5,479,054) in view of Dennison et al. (US 5,338,700).

Tottori discloses a method for fabrication a semiconductor device comprising the steps of:

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forming a first conductor pattern (**14a and 14b**) over a semiconductor substrate (**10**);

forming a first insulation film (**2**), a nitride layer covering the conductor pattern (column 9, lines 34-36 and 47-49);

forming over the first insulation film a second insulation film (**3**), an oxide layer (column 9, lines 49-53). Since the first and second insulation films differ, then they would result in, the second insulation film having etching characteristics different from those of the first insulation film;

forming over the second insulation film a third insulation film (**20**), a nitride layer (column 12, lines 48-50). Since the second first and third insulation films differ, then they would result in, the third insulation film having etching characteristics different from those of the second insulation film.

Tottori discloses, “. . . A connection hole **18** is formed by photolithography and RIE in the first silicon oxide film/ nitride film **2**, the oxide film **3**, the oxide film **5**, the second silicon oxide film/nitride film **9** (which is undoped silicon oxide)” (column 11, lines 18-21), which reads on

etching the third insulation film with the mask layer as a mask and the second insulation film as a stopper to form an opening in the third insulation film;

etching the second insulation film in the opening with the first insulation film as a stopper so as to open the opening down to the first insulation film; and

etching the first insulation film in the opening. The above also reads on,

forming a hole in the fourth insulation film, the third insulation film, the second insulation film and the first insulation film; and

forming a second conductor in the opening (column 11, lines 19-40).

Tottori differs in failing to disclose forming a first insulation film having a substantially flat surface, **in claim 1**; and

polishing the second insulation film, **in claims 6, 7, 9, 10, 12, and 14**.

Dennison discloses “. . . a thin layer **20** of  $\text{Si}_3\text{N}_4$  (which is the same as applicants' first insulation layer) is provide atop the wafer . . .” (column 3, lines 34-36) and “. . . planarized first layer **28** (which is the same as applicants' first and second insulation layer) of an insulating material . . . which is planarized back by chemical mechanical polishing (CMP)” (column 3, lines 50-54). It is noted that there are no intrinsic properties obtained by planarizing a first and second insulation layer. An insulation layer can be planarized by chemical mechanical polishing not by virtue that it is a first or a second insulating film.

Since Dennison illustrates forming a planarized insulation film by chemical mechanical polishing, then it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Tottori by planarizing an insulation layer as taught in the Dennison reference because planarizing an insulation layer is known to be effective in fabricating semiconductor devices.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynette T. Umez-Eronini whose telephone number is 571-272-1470. The examiner is normally unavailable on the First Friday.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571-272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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December 26, 2005



**SHAMMAHMED  
PRIMARY EXAMINER**